ROLE OF AGRICULTURE FOR POVERTY ALLEVIATION IN PAKISTAN

By

Dr. Allah Bakhsh Sufi [1], Talib Hussain and Muhammad Anwar

ABSTRACT

According to Pakistan Economic Survey 2008-09, 38% of Pakistan's population is living below poverty line. Due to irrigation water scarcity more land could not be brought under cultivation. There is a need of good water management alongwith quality agriculture. There is a burning need to emphasize on increase in per acre yield to meet the requirements of increasing population and obvious rise in Gross Domestic Product (GDP). Majority of the Pakistani farmers are small holders and actually responsible for high production if they are properly addressed. Through cheaper quality seed, cheaper quality fertilizer, short, medium and long term loans, improved agricultural implements and techniques etc. are essential for advancement in the sector.

Advancement in agriculture will lead to accelerated exports (cash crops ; rice, cotton, tobacco etc.) as well as cheap availability of raw materials and industrial consumption for textiles, garments, sports goods etc. that will mean higher GDP reduction in unemployment and poverty cultivation. Pakistan's GDP growth at about 3% is alarmingly low due to a variety of reasons, electricity deficit and prolonged outages global recession and the un-precedented floods that triggered widespread loss of precious lives, standing crops, live-stock, houses, the infrastructure and above all the displacement of over 20 million people. However despite these crippling odds, it has the element of resilience and will bounce back provided appropriate adjustments, reforms and motivation are put in place. It needs proper up-gradation of agriculture sector through infusing financial and commodity aid as the sector has been badly shattered in the recent floods. The industrial managers also need to equip their outfits with cutting edge technology.

1. INTRODUCTION

Agriculture is the single largest sector of Pakistan's economy contributing about 21% of the total GDP and employs 17.5 million workers (44% of total labour force). The livelihood of 62% population of the country living in rural areas depends directly or indirectly on agriculture. The performance of agriculture sector does not commensurate with the food and fibre requirements of rapidly increasing population as the sector has been ignored as requisite investment was not made the past. Approximately 38% of the country's population continues to live below the poverty line and there are alarming gaps in the social strata of the various regiment of the people. Water scarcity is emerging as a serious problem all over the world, especially in developing countries like Pakistan. Yields per hectare of our crops are 50-70 percent below their achievable potential, resulting in acute deficit in food, fodder and fibre. Resource development strategies at micro and macro level alongwith their conservation measures is the only way to face the challenges of water shortage, food security, agriculture's sustainability, challenges of land and water degradation and environment protection. Hence, uplift and modernization of agriculture is essential for poverty alleviation as well as welfare of the people. Irrigated area contributes a lot towards total agriculture production but increasing water scarcity is a serious threat to sustainable sector of agriculture and to national economy. There is less possibility of increasing water availability in near future and therefore there is dire need of economic and efficient use of this precious valuable bounty of the nature. The paper discusses present resource inventory, agriculture constraints, potential and suggests a way forward for improving productivity through resource conservation technologies and the role it plays in alleviating rural poverty.

---

1. Chief Engineer, Director (Agri.) and Dy. Director (Agri.), WRPO, P&D (Water), WAPDA, Lahore.

2. CONSTRAINTS OF AGRICULTURE

Conservation Agriculture, is an approach for the design and management of sustainable and resource-conserving agricultural system. It seeks to conserve, improve and make more efficient use of natural resources through integrated management of soil, water, crop and other biological resources in combination with selected external inputs. Such a technological package represents a resource saving and efficient/effective agriculture that contributes to environmental conservation and at the same time enhances production on sustainable basis. Elements of Conservation Agriculture, inter-alia, organic soil cover, improved farm water management, minimum tillage, direct seeding through the crop residue and appropriate crop rotations to avoid disease and pest problems. At present neither the land and water resources are fully and efficiently utilized nor the achievable yield potential of crop is obtained due to the mismanagement of our resource base, politicizing of water issue and the failure of implementation for high production technology at the field level. Waterlogged and saline soils not only reduce cropped area but also reduce fertility and productivity that causes low crop yield compared to normal soils. Floods, overflows, seepage and percolation of water from canal and watercourses give rise to problems of Waterlogging and salinity. The major constraints faced by agriculture in Pakistan are:

1. Low availability and productivity of water,
2. Primitive nature of farming,
3. Waterlogging and salinity,
4. Problematic marketing system,
5. Complex agriculture credit institutions,
6. Inadequate research and extension services,
7. Under utilization of land resources,
8. Achievable yield potential,
9. Non-development of rain fed area
10. Dwindling land units,
11. Poor infra-structure,
12. Pricing and quality of inputs,
13. Wasteful irrigation system and methods and
14. Unchecked Population Growth.

It is estimated that out of total inflow from rivers and groundwater abstraction, only 40 percent become available for crop production. The extent of water loss at various levels is: (i) canals, distributaries and minors (23%); (ii) watercourses and farm channels (30%); (iii) field application (30%); and (iv) un-controlled flow to sea (25%). Moreover in 1951 Pakistan's population was 34 millions and per capita water available was 5650 M^3 which is reduced to 1038 M^3 due to the pressure of population which is presently around 167 million. If population growth remains same it is clear that by 2025 it will rise to 221 million and per capita water availability will decline towards a dangerous figure of 800 M^3. As per global criteria, 1000 M^3 per capita is the threshold value. Water resources development is the main tool for enhancing the agricultural productivity in developing country like Pakistan.

Promotion of resource conservation techniques such as land leveling, watercourse improvement, bed and furrow planting, zero tillage and crop stubble management can greatly help in sustainable irrigated agriculture.

The yields of most agricultural crops are far below of their achievable potential. The major crops (wheat, rice, sugarcane and cotton) occupy 75% of the total cultivated area of the country, suggesting a good potential of increasing their yield by implementing improved production technology at the farm level.

With better and healthy agronomic techniques, the crop production could be raised in the range of 5 to 25% under irrigated agriculture such as 15% with recognized varieties at appropriate time of sowing, 5% with use of certified seed, 25% with right fertilizer in proper ratio's and 15% with eradication of weeds.

Crop	Area (000 Ha)	Yield (Tons/Ha)	Production (000Tons)	Increase (000 Tons)
Wheat	9046	2.657	24033	12016
Rice	2963	2.347	6952	3476
Sugarcane	1029	48.616	50045	25022
Cotton (000 bales)	2820	0.713	11819	5909

Source: *Agricultural Statistics of Pakistan 2008-2009*

There improvements if implemented would increase agriculture production by 50% to 60% i.e. 40514 thousand tons. Wheat, Rice and Sugarcane will increase 12016, 3476 and 25022 thousand tons respectively and 5909 thousand bales increase in cotton which will contribute additional Rs. 647 billion towards GDP and will raise the per capita income by Rs.3876.

3. FUTURE STRATEGY

Non-application of modern technology is also contributing to low yield than that of world average. Infusion of modern management practices in farm sector to boost productivity is important to enable farmers to move farm subsistence to market-driven farming that requires changes in crop selection, cultivation, harvesting, marketing, transportation and adoption of new technologies.

Adoption of new technology is also important to convert farmers' work into capital. Subsistence farmers produce food to sustain them only and new technology will enable them to produce surplus. New technology would give farmers more choice and help them plan cultivation in a demand rather than supply-driven environment.

Compared to other sectors of economy like small and large-scale manufacturing, there is less public and private investment in this sector. In addition, private investment could be helpful in arresting the problems of irrigation system, improving seed distribution, and bringing in new technology. Farmers are unaware of new technologies of efficient irrigation methods like drip irrigation and sprinkler irrigation. Availability of implements and new technology will have profound impact in improving crop productivity.

There is need of market-oriented reforms for broad based sustained growth in farm productivity. Market infrastructure is inadequate for easy transport of in-puts from market to farms and of farm produce to the market.

4. FUTURE INTERVENTIONS

For Pakistan, the notion of food security should move beyond a relatively static focus on food availability. Higher agricultural growth, particularly emanating from the crop sector, will provide food security by increasing supply, stabilizing prices, and raising incomes of poor-farm

households. To benefit from the current global food crises, Pakistan needs change in its policy-orientation from the current practice of focusing exclusively on price and to direct more attention towards yield enhancement and address, structural issues such as poor crop management skills of farmers; use of cheaper seeds; lack of agricultural infra-structure and higher post-harvest losses; limited research as well as the gap between available research and practical applications ; and inadequate funding for research and development. In order to achieve food and fibre security, cheap and assured supply of raw materials for the expanding industrial potential as well as to alleviate poverty, agriculture angled to be ascended highest poverty and Budgetary afloat.

4.1 Small & Medium Enterprises (SME)

Despite a persistent tendency to associate employment with large industry in the organized sector, an in-depth examination of employment potential makes it evident that the largest share of new jobs will come from the development of Small and Medium Enterprises (SMEs). SMEs are better insulated from the external shocks, more resistant to the stresses, and more responsive to the demands of the fast-changing technology adoption, globalization and entrepreneurial development. SMEs have contributed vast majority of private sector jobs in more advanced economies such as the USA, Japan, Korea and Bangladesh etc.

Agriculture based small and medium industries can absorb rural labour helping to reduce urbanization alongwith improving the rural masses income level. Special emphasis need to be given for setting up new agro-based industries in the country-side by offering incentives to attract private investment.

4.2 Micro-credit for the Poor Farmers in the Agriculture Sector

To specifically target the poor and landless in rural areas, micro-credit has proven to be potent intervention from the public sector alongwith the cooperation of the private sector. Moreover micro-credit is a powerful empowering instrument particularly for small land holders. Combined with education, micro-credit empowers the poor farmers to improve their livelihood themselves by raising productivity of crops and livestock.

4.3 Support of On-Farm Water Management (OFWM) Department

It is proposed that continuation of the National Programme for improvement of water courses may be provided full backup support by new government and a new scheme may be launched for further/additional lining of previously improved watercourses. Government of Sindh has already initiated a project for this purpose.

4.4 Induction of Improved Irrigation Techniques

Pressurized irrigation systems which have very high efficiency can be successfully used under water scarcity scenario for raising high value crops. Countries neighboring Pakistan e.g. China, Iran, India etc. have adopted these technologies at large scale and getting full production potential of their agricultural lands. Adoption of drip irrigation system can result in 25-75 percent higher yields in addition to saving of 40 percent water as compared to traditional irrigation practices.

The land on lease for corporate farming using drip irrigation is the most attractive proposal which yields the pay back period just after 7 years of operation. Whereas sprinkler and surface irrigation systems will take 9 and 13 years respectively. The mixed irrigation system covering 40% area under surface irrigation and 60% under drip irrigation will also take 7 years to return the investment. Until and unless the available water resources are not developed and ultimately the production is not increased, poverty reduction would remain a mirages.

4.5 Monitoring and Evaluation

In-depth monitoring and impact evaluation information is essential to ensure the relevance, efficacy and efficiency of the resources spent for poverty reduction. The increasing awareness of the multidimensional nature of poverty and the need to factor in perceptions of the poor into

strategies for its reduction adds to the complexity of the challenges.

The present capacity for poverty monitoring and reporting progress is by and large inadequate. The quality and regularity of survey information are weak. The capacity to analyze statistical information is marginally better. Achieving poverty reduction targets would require an effective monitoring system that regularly measures their implementation and impact.

4.6 Other allied Agricultural Initiatives

- Crop Insurance Plan to mitigate the risk of the farming community in case of crop damage.
- Tubewell subsidies to meet the irrigation water shortage during irrigation crisis.
- Establishing cold chains and warehouses in the government and private sector to minimize post harvest losses.
- Special programme for food security and productivity enhancement of small farmers.
- Establishment of facilitation unit for participatory vegetable seed and nursery programme.
- Agri business development and diversification projects. National Agricultural research programme for improved varieties and allied entities.
- National programme for improvement of watercourses to reduce the water losses.
- Water conservation and productivity enhancement through efficient irrigation.
- Land and water resource development project for poverty reduction.
- Monitoring of crops through satellite technology.
- Restructuring and strengthening of Agricultural research system.
- Training in poultry farming.
- Strengthening of livestock services for livestock disease control in Pakistan.
- Livestock production and development of meat production.
- Improving reproduction efficiency of cattle and buffaloes in small holders production system.
- National programme for the control and prevention of avian influenza.
- Encouraging the milk production, collection and Dairy Development.
- Encouraging the fish farming.

5. CONCLUSIONS AND RECOMMENDATIONS

Pakistan has basic ingredients such as fertile land, irrigation water, hard working farmers and certified seeds. The need of the hour is to utilise these through objective-oriented policies. On the contrary, Agriculture is facing problems like low productivity, in-adequate irrigation water, adulterated chemicals and non-availability of modern technology etc. Here the extension workers can play an active role if they carry out the following functions and duties:

- Convince the farmers to implement the latest technologies.

- Provide necessary information to the farming community

- Exchange and discuss problems and suggest remedial measures

- To cope with water shortage, complete reorganization of water sector institutions through mergers, economic utilisation of water resources, procurement of additional storage for crops round the year, building storage to overcome droughts and to develop comprehensive water and hydro resource policy are necessary.

- The use of conservation techniques in agriculture sector should be popularised through electronic media.

- Modern techniques for plant protection measures are required for effective control of diseases, insects and pests to avoid crop damages.

- The role of extension workers need to be organized, the Government should provide them the facilities for performing their duties and allocate them the specific areas.

- Research and extension of livestock production, products processing and marketing is imperative to make the livestock sector economically viable for farmers and investors.

- For growth to reduce poverty, it must emanate from sectors that have greater potential to generate employment.

- Since various forms of poverty in Pakistan are acute, these require targeted policy interventions to provide quick relief through short term employment opportunities, social safety nets and financial assistance.

- Additional income alone would not eliminate poverty unless the causes of poverty are addressed. Hence there is need to improve access to basic needs and governance.

- Involvement of the poor in the formulation of these policies and management of their affairs through broad-based alliance with civil society and the private sector is critical in attaining the objectives of the strategy.

- There is need for strong programme for monitoring and capacity development as well as impact assessment.

- Availability of adequate resources for poverty reduction program is important in determining the effectiveness of the strategy.

- Agriculture development is critically important to meet the poverty reduction since 67% of poor live in rural areas. There is enormous scope for accelerating growth in Agriculture, creating new jobs through expansion of the area, raising the crop yields, which increases labour intensity, diversifying cropping patterns from low value to high value crops for domestic consumption and export.

- Support to On-Farm Water Management Programme.

- Pressurized irrigation techniques should be adopted for high productivity.

REFERENCES

1. Economic Survey of Pakistan 2008-2009

.

2. Mid Term Development Framework 2005 -2010.

3. Drainage Master Plan of Pakistan Report Volume II of Main Report December 2005 International Waterlogging & Salinity Research Institute WAPDA.

4. Poverty Alleviation Strategy Paper-II November, 2008.

5. Revised Action Programme for Irrigated Agriculture Main Report Volume-I May, 1979 Water & Power Development Authority.

6. National Water Policy January 2003, Ministry of Water & Power, Govt. of Pakistan.

7. Water Sector Investment Planning Study1990, Federal Planning Cell, Lahore.